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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* JONG-WOON YANG, SUSUMU SEGAWA, IN-KYU PARK,  
TETSUYA OKADA, EUI-JEONG HWANG, SE-SUB SIM,  
JIN-WAN KIM, HAN-SEOK YUN, and BEOM-GYU KIM

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Appeal 2015-005788  
Application 12/845,642  
Technology Center 1700

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Before JEFFREY T. SMITH, N. WHITNEY WILSON, and  
JEFFREY R. SNAY, *Administrative Patent Judges*.

SNAY, *Administrative Patent Judge*.

DECISION ON APPEAL<sup>1</sup>

Appellants<sup>2</sup> appeal under 35 U.S.C. § 134(a) from the Examiner's decision rejecting claims 1–12. An Oral Hearing was held April 4, 2017. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm and designate our affirmance a new ground of rejection pursuant to our authority under 37 C.F.R. § 41.50(b).

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<sup>1</sup> We cite to the Specification (“Spec.”) filed July 28, 2010; Final Office Action (“Final Act.”) dated January 10, 2014; Appellants’ Appeal Brief (“App. Br.”) dated June 5, 2014; Examiner’s Answer (“Ans.”) dated March 19, 2015; and Appellants’ Reply Brief (“Reply Br.”) dated May 19, 2015.

<sup>2</sup> Appellants identify Samsung S.D.I. Co, Ltd. as the real party in interest. App. Br. 3.

## BACKGROUND

The subject matter on appeal relates to a battery pack which is intended to prevent re-use of the battery pack if the battery cells have been replaced. Spec. ¶ 2. Claims 1 and 8—the only independent claims on appeal—are reproduced from the Claims Appendix of the Appeal Brief as follows:

1. A battery pack comprising:
  - a voltage determining unit for determining whether a voltage from the battery cell of the battery pack is equal to or less than a first voltage;
  - an encryption code generating unit for generating a first encryption code according to information of the battery cell when the battery cell voltage is equal to or less than the first voltage; and
  - a control unit disposed to write the first encryption code to an area of a data flash, to check whether a second encryption code, generated by using the information of the battery cell after a power-on reset, match the first encryption code, and to prohibit operation of the battery pack when the first encryption code and the second encryption code do not match with each other.
8. A battery pack comprising a battery cell and a protective circuit having an analog front end (AFE), a charge-discharge switch, a fuse, and a microcomputer, the microcomputer comprising:
  - a voltage determining unit disposed to determine whether a voltage from the battery cell detected by the analog front end is equal to or less than a first voltage;
  - an encryption code generating unit disposed to generate a first encryption code by using information of the battery cell when the battery cell voltage is equal to or less than the first voltage, the information comprising at least one of the group consisting of a production date, a serial number, a full charge capacity (FCC), and a cycle count of the battery cell; and

a control unit disposed to write the first encryption code to an area of a data flash, to check whether a second encryption code, generated by using the information of the battery cell after a power-on reset, match the first encryption code, and to prohibit operation of the battery pack when the first encryption code and the second encryption code do not match with each other.

## REJECTIONS

- I. Claims 1–12 stand rejected under 35 U.S.C. § 112, second paragraph, as indefinite.
- II. Claims 1–12 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Kim<sup>3</sup> and Iwasaki.<sup>4</sup>

## DISCUSSION

### *Rejection I*

Appellants argue the rejected claims as a group. App. Br. 7–11. We limit our discussion to the independent claims.

The Examiner finds that the phrase “encryption code” as recited in each of claims 1 and 8 is indefinite, Final Act. 3, on the basis that the specification lacks “clarification as to what information is being encrypted or if the encryption ‘code’ itself is being generated as standalone data.” Ans. 5. Appellants argue that the noted phrase “is well known in the art.” App. Br. 10.

We begin with claim construction. Claim 1 recites “a voltage determining unit for determining whether a voltage from the battery cell of the battery pack is equal to or less than a first voltage.” Claim 8 similarly

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<sup>3</sup> US 2009/0085521 A1, published April 2, 2009 (“Kim”).

<sup>4</sup> US 2010/0123463 A1, published May 20, 2010 (“Iwasaki”).

recites “a voltage determining unit disposed to determine whether a voltage from the battery cell detected by the analog front end is equal to or less than a first voltage.” We conclude that these recitations invoke the provisions set forth in 35 U.S.C § 112, sixth paragraph.

In determining whether a means-plus-function type claim recitation invokes § 112, sixth paragraph, “the essential inquiry is not merely the presence or absence of the word ‘means’ but whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Williamson v. Citrix Online*, 792 F.3d 1339, 1348 (Fed. Cir. 2015). Here, the phrase “voltage determining unit” indicates only a black box recitation of structure for providing the specified function of determining voltage. Although Appellants do not use the word ‘means,’ the term ‘unit’ in the above-mentioned recitation is tantamount to ‘means.’ *See id.* at 1350 (“Generic terms such as mechanism, element, device, and other nonce words that reflect nothing more than verbal constructs may be used in a claim in a manner that is tantamount to using the word means because they typically do not connote sufficiently definite structure and therefore may invoke § 112, para. 6.”) (internal quotes omitted). Thus, we construe the phrase “voltage determining unit” in each of claims 1 and 8 and being limited to “the structure, materials, or acts described in the specification as corresponding to the claimed function and equivalents thereof.” *Id.* at 1347–8 (citing *Northrop Grumman Corp. v. Intel Corp.*, 325 F.3d 1346, 1350 (Fed. Cir. 2003)).

Applying the reasoning set forth above, we conclude that the “encryption code generating unit” and “control unit” recitations in claims 1 and 8 likewise invoke 35 U.S.C. § 112, sixth paragraph.

To construe a means-plus-function recitation pursuant to § 112, sixth paragraph, we first identify the claimed function and then determine what structure, if any, disclosed in the specification corresponds to the claimed function. *Noah Sys., Inc. v. Intuit Inc.*, 675 F.3d 302, 1311 (Fed. Cir. 2012). If the specification does not disclose adequate corresponding structure, the claim is indefinite. *Id.* at 1311–12.

Here, the respective function(s) associated with each of the recited elements is expressly stated in the independent claims. For example, the claimed voltage determining unit determines whether a voltage from the battery cell of the battery pack is equal to or less than a first voltage. The claimed encryption code generating unit generates a first encryption code according to information of the battery cell when the battery cell voltage is equal to or less than the first voltage. The control unit (i) writes the first encryption code, (ii) checks whether a second encryption code matches the first encryption code, and (iii) prohibits operation of the battery pack when the first and second encryption codes do not match. According to the Specification, all of the foregoing functions are performed by the same structure—a microcomputer. *See Spec.* ¶ 15; Fig. 2. *See also* Reply Br. 4 (acknowledging that “Applicant has claimed element units of a microcomputer which perform specific function[s] in order for the microcomputer to control operation of a battery pack”).

In cases such as this one, involving a computer-implemented means-plus-function recitation, the supporting corresponding structure disclosed in

the Specification must be “more than simply a general purpose computer or microprocessor.” *Id.* at 1312 (quoting *Aristocrat Techs. Austl. Pty Ltd. V. Int’l Game Tech.*, 521 F.3d 1328, 1333 (Fed. Cir. 2008)). The Specification must disclose an algorithm for performing the claimed function. *Id.* The algorithm can be expressed in “any understandable terms including as a mathematical formula, in prose, or as a flow chart, or in any other manner that provides sufficient structure.”

We find no disclosure in the Specification of an algorithm corresponding to any of the three means-plus-function recitations discussed above.<sup>5</sup> Accordingly, we conclude that each of claims 1 and 8 includes means-plus-function recitations that lack adequate disclosure of corresponding structure in the Specification. We therefore affirm the Examiner’s determination in Rejection I that claims 1–12 are unpatentable as failing to satisfy the definiteness requirement of 35 U.S.C § 112, second paragraph. Because our reasoning in making that determination differs from that articulated by the Examiner, we designate our affirmance a new ground of rejection.

#### *Rejection II*

In light of our determination that the voltage determining unit, encryption code generating unit, and control unit recitations present in each of the claims on appeal, expressly or implicitly by dependence, are indefinite, we cannot determine the propriety of the Examiner’s obviousness

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<sup>5</sup> We note that Figures 3 and 4 of the Specification depict flow charts which depict the claimed means-plus-function recitations as steps to be performed, but do not provide algorithms for performing any of the claimed means-plus-function recitations.

rejection without necessarily engaging in improper speculation as to the scope and meaning of the claims. *See In re Steele*, 305 F.2d 859, 862 (CCPA 1962). Accordingly, we procedurally reverse Rejection II. Our reversal is procedural in nature and not based on the merits of the rejection.

### CONCLUSION

We procedurally reverse the Examiner's § 103 rejection without reaching the merits of that rejection.

We sustain the Examiner's § 112, second paragraph rejection on reasoning that differs from the Examiner's.

### DECISION

The Examiner's decision rejecting claims 1–12 is affirmed. We have designated our affirmance as a new ground of rejection pursuant to 37 C.F.R. § 41.50(b).

### TIME PERIOD FOR RESPONSE

This decision contains a new ground of rejection pursuant to 37 C.F.R. § 41.50(b). Section 41.50(b) provides “[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review.” Section 41.50(b) also provides:

When the Board enters such a non-final decision, the appellant, within two months from the date of the decision, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:



(1) *Reopen prosecution.* Submit an appropriate amendment of the claims so rejected or new Evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the prosecution will be remanded to the examiner. The new ground of rejection is binding upon the examiner unless an amendment or new Evidence not previously of Record is made which, in the opinion of the examiner, overcomes the new ground of rejection designated in the decision. Should the examiner reject the claims, appellant may again appeal to the Board pursuant to this subpart.

(2) *Request rehearing.* Request that the proceeding be reheard under § 41.52 by the Board upon the same Record. The request for rehearing must address any new ground of rejection and state with particularity the points believed to have been misapprehended or overlooked in entering the new ground of rejection and also state all other grounds upon which rehearing is sought.

Further guidance on responding to a new ground of rejection can be found in the Manual of Patent Examining Procedure § 1214.01.

AFFIRMED; 37 C.F.R. § 41.50(b)